

REFERENCES

- Adhvaryu, A., Liu, Z., & Erhan, S. Z. (2005). Synthesis of novel alkoxyated triacylglycerols and their lubricant base oil properties. *Industrial Crops and Products*, 21(1), 113-119
- Agarwal, G., Patnaik, A., & Sharma, R. K. (2012). Parametric optimization of three-body abrasive wear behavior of bidirectional and short kevlar fiber reinforced epoxy composites.
- Amoser, M., Demmerle, R., Barrow, S., Terrettaz, F., & Jaquet, D. (2001). Insights into piston-running behaviour. *Marine News*(2-2001)
- Andersson, B. S. (1991). Paper XVIII (iii) Company Perspectives in Vehicle Tribology - Volvo. In C. M. T. D. Dowson & M. Godet (Eds.), *Tribology Series* (Vol. Volume 18, pp. 503-506): Elsevier.
- Andersson, P. (2003). A new tribometer for piston ring friction measurements. *Tribology Series*, 41, 501-510
- Andersson, P., Tamminen, J., & Sandström, C.-E. (2002). Piston ring tribology. *A literature survey. VTT Tiedotteita-Research Notes*, 2178(1)
- Arumugam, S., & Sriram, G. (2012). Effect of Bio-Lubricant and Biodiesel-Contaminated Lubricant on Tribological Behavior of Cylinder Liner–Piston Ring Combination. *Tribology Transactions*, 55(4), 438-445
- Arumugam, S., Sriram, G., & Ellappan, R. (2014). Bio-lubricant-biodiesel combination of rapeseed oil: An experimental investigation on engine oil tribology, performance, and emissions of variable compression engine. *Energy*, 72, 618-627
- Asadauskas, S., Perez, J. H., & Duda, J. L. (1997). Lubrication properties of castor oil--potential basestock for biodegradable lubricants. *Tribology & Lubrication Technology*, 53(12), 35
- Aue, G. (1975). *Piston ring scuffing-General review*. Paper presented at the Proceeding of Conference Sponsored by the Tribology Group, the Combustion Engines Group, and the Automobile Division of the Institution of Mechanical Engineers.
- Balasubramaniam, B., Sudalaiyadum Perumal, A., Jayaraman, J., Mani, J., & Ramanujam, P. (2012). Comparative analysis for the production of fatty acid alkyl esterase using whole cell biocatalyst and purified enzyme from *Rhizopus oryzae* on waste cooking oil (sunflower oil). *Waste Management*, 32(8), 1539-1547

- Barnes, A. M., Bartle, K. D., & Thibon, V. R. A. (2001). A review of zinc dialkyldithiophosphates (ZDDPS): characterisation and role in the lubricating oil. *Tribology International*, 34(6), 389-395
- Bell, J. C. (1993). Engine lubricants. In C. M. Taylor (Ed.), *Tribology Series* (Vol. Volume 26, pp. 287-301): Elsevier.
- Bezerra, M. A., Santelli, R. E., Oliveira, E. P., Villar, L. S., & Escalera, L. A. (2008). Response surface methodology (RSM) as a tool for optimization in analytical chemistry. *Talanta*, 76(5), 965-977
- Bhale, P. V., Deshpande, N., & Thombre, S. (2008). Simulation of wear characteristics of cylinder liner ring combination with diesel and biodiesel. *Society of Automotive Engineers*
- Bijwe, J., Garg, A., & Gandhi, O. (2000). Reassessment of engine oil periodicity in commercial vehicles. *Tribology & Lubrication Technology*, 56(1), 23
- Çakir, M., & Akçay, I. H. (2014). Frictional behavior between piston ring and cylinder liner in engine condition with application of reciprocating test. *International Journal of Materials Engineering and Technology*, 11(1), 57
- Cesur, İ., Ayhan, V., Parlak, A., Savaş, Ö., & Aydin, Z. (2014). The Effects of Different Fuels on Wear between Piston Ring and Cylinder. *Advances in Mechanical Engineering*, 2014, 1-8
- Chambers, K., Arneson, M., & Waggoner, C. (1988). An on-line ferromagnetic wear debris sensor for machinery condition monitoring and failure detection. *Wear*, 128(3), 325-337
- Chang, B. P., Akil, H. M., Affendy, M. G., Khan, A., & Nasir, R. B. M. (2014). Comparative study of wear performance of particulate and fiber-reinforced nano-ZnO/ultra-high molecular weight polyethylene hybrid composites using response surface methodology. *Materials & Design*, 63(0), 805-819
- Chauhan, P. S., & Chhibber, D. (2013). Non-edible oil as a source of bio-lubricant for industrial applications: a review. *Int J Eng Sci Innov Technol (IJESIT)*, 2
- Cheenkachorn, K., & Fungtammasan, B. (2010). Development of engine oil using palm oil as a base stock for four-stroke engines. *Energy*, 35(6), 2552-2556
- Coy, R. (1998). Practical applications of lubrication models in engines. *Tribology International*, 31(10), 563-571
- Dong, J., Van de Voort, F. R., Ismail, A. A., Akochi-Koble, E., & Pinchuk, D. (2000). Rapid determination of the carboxylic acid contribution to the total acid number of

- lubricants by Fourier transform infrared spectroscopy. *Lubrication engineering*, 56(6), 12-20
- Dong, W., Davis, E., Butler, D., & Stout, K. (1995). Topographic features of cylinder liners—an application of three-dimensional characterization techniques. *Tribology International*, 28(7), 453-463
- Dowson, D. (1998). *History of Tribology*: Wiley.
- Dufrane, K., & Kannel, J. (1989). Thermally induced seizures of journal bearings. *Journal of tribology*, 111(2), 288-292
- Fazal, M. A., Haseeb, A. S. M. A., & Masjuki, H. H. (2011). Effect of temperature on the corrosion behavior of mild steel upon exposure to palm biodiesel. *Energy*, 36(5), 3328-3334
- Fazal, M. A., Haseeb, A. S. M. A., & Masjuki, H. H. (2012). Degradation of automotive materials in palm biodiesel. *Energy*, 40(1), 76-83
- Fitch, J. C., & Troyer, D. D. (2000). Sampling methods for used oil analysis. *Tribology & Lubrication Technology*, 56(3), 40
- Fujita, E. M., Campbell, D. E., & Zielinska, B. (2006). Chemical analysis of lubrication oil samples from a study to characterize exhaust emissions from light-duty gasoline vehicles in the Kansas City Metropolitan Area. *Final Report*
- G.E.P. Box, D. W. B. (1960). *Technometrics* 2.
- Glaeser, W. (1992). *Materials for tribology* (Vol. 20): Elsevier.
- Glidewell, J., & Korcek, S. (1998). Piston ring/cylinder bore friction under flooded and starved lubrication using fresh and aged engine oils: SAE Technical Paper.
- Golloch, R., Kessen, U., & Merker, G. P. (2002). Tribological investigations on the piston assembly group of a diesel engine. *MTZ worldwide*, 63(6), 21-24
- Gryglewicz, S., Stankiewicz, M., Oko, F. A., & Surawska, I. (2006). Esters of dicarboxylic acids as additives for lubricating oils. *Tribology International*, 39(6), 560-564
- Gulzar, M., Masjuki, H. H., Varman, M., Kalam, M. A., Zulkifli, N. W. M., Mufti, R. A., . . . Arslan, A. (2016). Effects of biodiesel blends on lubricating oil degradation and piston assembly energy losses. *Energy*, 111, 713-721
- Gupta, P. (2001). On a multi-process wear model. *LUBRICATION ENGINEERING-ILLINOIS*, 57(4), 19-24

- Haseeb, A. S. M. A., Sia, S. Y., Fazal, M. A., & Masjuki, H. H. (2010). Effect of temperature on tribological properties of palm biodiesel. *Energy*, 35(3), 1460-1464
- Haselkorn, M., & Kelley, F. (1992). *Development of Wear Resistant Ceramic Coatings for Diesel Engines*. Paper presented at the SAE CONFERENCE PROCEEDINGS P.
- Hatamake, T., Wakuri, Y., Soejima, M., & Kithara, T. (2001). *Some studies on the tribology of diesel engines*. Paper presented at the 23rd CIMAC world congress on combustion engine technology for ship propulsion, power generation, rail traction.
- Henein, N. A., Ma, Z., Huang, S., Bryzik, W., & Glidewell, J. (1998). In situ wear measuring technique in engine cylinders. *Tribology Transactions*, 41(4), 579-585
- Howard E. Boyer and Timothy L. Gall, E. (1985). *Metals Handbook*. Materials Park, OH: American Society for Metals.
- Huang, C., Zong, M.-h., Wu, H., & Liu, Q.-p. (2009). Microbial oil production from rice straw hydrolysate by *Trichosporon fermentans*. *Bioresource Technology*, 100(19), 4535-4538
- Hunt, T. M. (1993). *Handbook of wear debris analysis and particle detection in liquids*: Springer Science & Business Media.
- Iijima, T., & Inada, Y. (2001). Piston for internal combustion engines: Google Patents.
- Jayadas, N. H., Prabhakaran Nair, K., & G, A. (2007). Tribological evaluation of coconut oil as an environment-friendly lubricant. *Tribology International*, 40(2), 350-354
- Johansson, S., Nilsson, P. H., Ohlsson, R., & Rosén, B.-G. (2011). Experimental friction evaluation of cylinder liner/piston ring contact. *Wear*, 271(3), 625-633
- John M. (Tim) Holt, T. E. C. Y. H., Ed., . (1996). *Structural Alloys Handbook*. West Lafayette, IN: CINDAS/Purdue University.
- Kadrigama, K., & Abou-El-Hossein, K. A. (2005). Power Prediction Model for Milling 618 Stainless Steel Using Response Surface Methodology *American Journal of Applied Sciences*, 7, 1182-1187
- Kalam, M. A., Masjuki, H. H., Varman, M., & Liaquat, A. M. (2005). Friction and wear characteristics of waste vegetable oil contaminated lubricants. *International Journal of Mechanical and Materials Engineering (IJMME)*, 6(3), 431-436
- Kapoor, A., Tung, S. C., Schwartz, S. E., Priest, M., & Dwyer-Joyce, R. S. (2001). Automotive tribology. *Modern Tribology Handbook*, 2, 1187-1229

- Kauzlarich, J., & Williams, J. (2001). Archard wear and component geometry. *Proceedings of the Institution of Mechanical Engineers, Part J: Journal of Engineering Tribology*, 215(4), 387-403
- Khuri, A. I., & Cornell, J. A. (1996). *Response surfaces: designs and analyses* (Vol. 152): CRC press.
- Koshy, C. P., Rajendrakumar, P. K., & Thottackkad, M. V. (2015). Evaluation of the tribological and thermo-physical properties of coconut oil added with MoS₂ nanoparticles at elevated temperatures. *Wear*, 330-331, 288-308
- Lacey, P., & Stockwell, R. (1999). Development of a Methodology to Predict Cylinder Liner Scuffing in the 6V92TA Engine Lubricant Test©. *Tribology Transactions*, 42(1), 192-201
- Lajis, M. A., KARIM, A. N. M., AMIN, A. K. M. N., HAFIZ, A. M. K., & Turnad, L. G. (2008). Prediction of Tool Life in End Milling of Hardened Steel AISI D2. *European journal of scientific research*, vol.4, pp.592 – 602
- Lee, J., & Mudawar, I. (2007). Assessment of the effectiveness of nanofluids for single-phase and two-phase heat transfer in micro-channels. *International Journal of Heat and Mass Transfer*, 50(3), 452-463
- Lipp, S., & Schmidt, R. (2001). *The New FERROCOMP-Piston for High Cylinder Output*. Paper presented at the The 23rd CIMAC Congress in Hamburg.
- Ludema, K. C. (1984). A review of scuffing and running-in of lubricated surfaces, with asperities and oxides in perspective. *Wear*, 100(1), 315-331
- Ma, Z., Henein, N. A., Bryzik, W., & Glidewell, J. (1998). Break-in liner wear and piston ring assembly friction in a spark-ignited engine. *Tribology Transactions*, 41(4), 497-504
- Maleque, M., Masjuki, H., & Ishak, M. (1998). Bio-fuel-contaminated lubricant and hardening effects on the friction and wear of AISI 1045 steel. *Tribology Transactions*, 41(1), 155-159
- Maleque, M. A., Masjuki, H. H., & Haseeb, A. S. M. A. (2000). Effect of mechanical factors on tribological properties of palm oil methyl ester blended lubricant. *Wear*, 239(1), 117-125
- Masjuki, H., & Maleque, M. (1997). Investigation of the anti-wear characteristics of palm oil methyl ester using a four-ball tribometer test. *Wear*, 206(1), 179-186
- Masjuki, H. H., & Maleque, M. A. (1996). The effect of palm oil diesel fuel contaminated lubricant on sliding wear of cast irons against mild steel. *Wear*, 198(1-2), 293-299

- Masjuki, H. H., Maleque, M. A., Kubo, A., & Nonaka, T. (1999). Palm oil and mineral oil based lubricants—their tribological and emission performance. *Tribology International*, 32(6), 305-314
- Mehta, D. S., Masood, S. H., & Song, W. Q. (2004). Investigation of wear properties of magnesium and aluminum alloys for automotive applications. *Journal of Materials Processing Technology*, 155–156, 1526-1531
- Meurant, G. (2009). *Tribology: a systems approach to the science and technology of friction, lubrication, and wear* (Vol. 1): Elsevier.
- Mobarak, H. M., Niza Mohamad, E., Masjuki, H. H., Kalam, M. A., Al Mahmud, K. A. H., Habibullah, M., & Ashraful, A. M. (2014). The prospects of biolubricants as alternatives in automotive applications. *Renewable and Sustainable Energy Reviews*, 33(0), 34-43
- Moebus, H. (1986). Piston for internal combustion engines: Google Patents.
- Monaghan, M. L. (1988). ENGINE FRICTION — A CHANGE IN EMPHASIS: A new approach which may result in significant fuel consumption gains. *Industrial Lubrication and Tribology*, 40(2), 4-11
- Montgomery, D. C. (1982). *Design and analysis of experiments*: Wiley New York.
- Munro, R. (1990). Emissions Impossible-The Piston & Ring Support System: SAE Technical Paper.
- Nehme, G. N. (2012). The effect of FeF₃/TiF₃ catalysts on the thermal and tribological performance of plain oil ZDDP under extreme pressure loading. *Wear*, 278–279, 9-17
- Noordin, M. Y., Venkatesh, V. C., Sharif, S., Elting, S., & Abdullah, A. (2004). Application of response surface methodology in describing the performance of coated carbide tools when turning AISI 1045 steel. *Journal of Materials Processing Technology*, 145(1), 46-58
- Peng Chang, B., Md Akil, H., Bt Nasir, R., & Khan, A. (2015). Optimization on wear performance of UHMWPE composites using response surface methodology. *Tribology International*, 88, 252-262
- Priest, M., & Taylor, C. (2000). Automobile engine tribology—approaching the surface. *Wear*, 241(2), 193-203
- Radil, K. C. (2000). The influence of honing on the wear of ceramic coated piston rings and cylinder liners: DTIC Document.

- Rajasekhar, P., Ganesan, G., & Senthilkumar, C. (2014). Studies on Tribological Behavior of Polyamide Filled Jute Fiber-Nano-ZnO Hybrid Composites. *Procedia Engineering*, 97(0), 2099-2109
- Rastegar, F., & Richardson, D. (1997). Alternative to chrome: HVOF cermet coatings for high horse power diesel engines. *Surface and Coatings Technology*, 90(1), 156-163
- Röhrle, M. D. (1995). *Pistons for Internal Combustion Engines: Fundamentals of Piston Technology*: Landsberg/Lech, Germany.
- Shahabuddin, M., Masjuki, H. H., Kalam, M. A., Bhuiya, M. M. K., & Mehat, H. (2013). Comparative tribological investigation of bio-lubricant formulated from a non-edible oil source (Jatropha oil). *Industrial Crops and Products*, 47, 323-330
- Shuster, M., Mahler, F., & Crysler, D. (1999). Metallurgical and Metrological Examinations of the Cylinder Liner-Piston Ring Surfaces After Heavy Duty Diesel Engine Testing©. *Tribology Transactions*, 42(1), 116-125
- Singh, A. K. (2011). Castor oil-based lubricant reduces smoke emission in two-stroke engines. *Industrial Crops and Products*, 33(2), 287-295
- Sorate, K., & Bhale, P. (2013). Impact of biodiesel on fuel system materials durability. *J. Sci. Ind. Res*, 72, 48-57
- Stachowiak, G., & Batchelor, A. W. (2004). *Experimental methods in tribology* (Vol. 44): Elsevier.
- Stachowiak, G., & Batchelor, A. W. (2013). *Engineering tribology*: Butterworth-Heinemann.
- Stachowiak, G. W., Batchelor, A. W., & Stachowiak, G. B. (2004). 2 - Simulation of Wear and Friction. In A. W. B. Gwidon W. Stachowiak & B. S. Grazyna (Eds.), *Tribology Series* (Vol. Volume 44, pp. 13-23): Elsevier.
- Sulek, M., Kulczycki, A., & Malysa, A. (2010). Assessment of lubricity of compositions of fuel oil with biocomponents derived from rape-seed. *Wear*, 268(1), 104-108
- Tandon, A., Kumar, A., Mondal, P., Vijay, P., Bhangale, U., & Tyagi, D. (2011). Tribological Issues Related to the Use of Biofuels: A New Environmental Challenge. *British Journal of Environment and Climate Change*, 1(2), 28
- Taylor, C. M. (1993). Engine Bearings: Background and Lubrication Analysis. In C. M. Taylor (Ed.), *Tribology Series* (Vol. Volume 26, pp. 89-112): Elsevier.
- Terheci, M., Manory, R., & Hensler, J. (1995). The friction and wear of automotive grey cast iron under dry sliding conditions Part 1-relationships between wear loss and testing parameters. *Wear*, 180(1), 73-78

- Thames, S. F., & Yu, H. (1999). Cationic UV-cured coatings of epoxide-containing vegetable oils. *Surface and Coatings Technology*, 115(2–3), 208-214
- Ting, L. (1993). Development of a Reciprocating Test Rig for Tribological Studies of Piston Engine Moving Components-Part II: Measurements of Piston Ring Friction Coefficients and Rig Test Confirmation: SAE Technical Paper.
- Truhan, J. J., Qu, J., & Blau, P. J. (2005). A rig test to measure friction and wear of heavy duty diesel engine piston rings and cylinder liners using realistic lubricants. *Tribology International*, 38(3), 211-218
- Tung, S. C., & McMillan, M. L. (2004). Automotive tribology overview of current advances and challenges for the future. *Tribology International*, 37(7), 517-536
- Urabe, M., Tomomatsu, T., Ishiki, K., Takiguchi, M., & Someya, T. (1998). Variation of Piston Friction Force and Ring Lubricating Condition in a Diesel Engine with EGR: SAE Technical Paper.
- Utlu, Z. (2007). Evaluation of Biodiesel Fuel Obtained from Waste Cooking Oil. *Energy Sources, Part A: Recovery, Utilization, and Environmental Effects*, 29(14), 1295-1304
- Wakuri, Y., Soejima, M., Ejima, Y., Hamatake, T., & Kitahara, T. (1995). Studies on friction characteristics of reciprocating engines: SAE Technical Paper.
- Wang, Y., & Tung, S. C. (1999). Scuffing and wear behavior of aluminum piston skirt coatings against aluminum cylinder bore. *Wear*, 225, 1100-1108
- Willing, A. (2001). Lubricants based on renewable resources – an environmentally compatible alternative to mineral oil products. *Chemosphere*, 43(1), 89-98
- Yaakob, Z., Mohammad, M., Alherbawi, M., Alam, Z., & Sopian, K. (2013). Overview of the production of biodiesel from Waste cooking oil. *Renewable and Sustainable Energy Reviews*, 18(0), 184-193
- Zeman, A., Sprengel, A., Niedermeier, D., & Späth, M. (1995). Biodegradable lubricants—studies on thermo-oxidation of metal-working and hydraulic fluids by differential scanning calorimetry (DSC). *Thermochimica Acta*, 268(0), 9-15
- Zhang, J., & Li, H. (2016). Influence of manganese phosphating on wear resistance of steel piston material under boundary lubrication condition. *Surface and Coatings Technology*, 304, 530-536
- Zulkifli, N. W. M., Kalam, M. A., Masjuki, H. H., Shahabuddin, M., & Yunus, R. (2013). Wear prevention characteristics of a palm oil-based TMP (trimethylolpropane) ester as an engine lubricant. *Energy*, 54(0), 167-173